

## CLAIMS

- 1        1. A system for printing time-based media data, the system comprising:  
2        a printing system for performing a multimedia function on the time-based  
3        media data;  
4        a processing device, communicatively coupled to the printer by a network for  
5        performing a multimedia function on the time-based media data; and  
6        a user interface for receiving a user selection of an amount of processing to be  
7        performed by the printer and an amount of processing to be performed  
8        by the processing device.
- 1        2. The system of claim 1 wherein the processing device includes the user  
2        interface.
- 1        3. The system of claim 1 wherein the printer includes the user interface.
- 1        4. The system of claim 1 wherein the user interface is on a device separate  
2        from the processing device and the printer.
- 1        5. The system of claim 2, 3 or 4 wherein the user interface displays status  
2        information about the performance of the multimedia function.
- 1        6. The system of claim 1 wherein the processing device is a personal  
2        computer.
- 1        7. The system of claim 1 wherein the multimedia function includes selecting  
2        a range of audio data in response to received input from the user.
- 1        8. The system of claim 1 wherein the multimedia function includes applying  
2        audio event detection to the time-based media data.

1           9. The system of claim 8 wherein the multimedia function further includes  
2   determining a confidence level associated with the audio event detection.

1           10. The system of claim 1 wherein the multimedia function includes  
2   applying a speaker segmentation function to the time-based media data.

1           11. The system of claim 1 or 10 wherein the multimedia function includes  
2   applying a speaker recognition function to the time-based media data.

1           12. The system of claim 1 wherein the multimedia function includes  
2   applying a sound source localization function to the time-based media data.

1           13. The system of claim 12 wherein the multimedia function further includes  
2   applying audio event detection to the time-based media data.

1           14. The system of claim 1 wherein the multimedia function includes  
2   applying a speech recognition function to the time-based media data.

1           15. The system of claim 14 wherein the multimedia function includes  
2   applying a profile analysis function to the time-based media data.

1           16. The system of claim 14 wherein the multimedia function includes  
2   applying an audio event detection function to the time-based media data.

1           17. The system of claim 16 wherein the multimedia function further includes  
2   applying a speaker recognition function to the time-based media data.

1           18. The system of claim 16 wherein the multimedia function further includes  
2     applying a speaker segmentation function to the time-based media data.

1           19. The system of claim 16 wherein the multimedia function further includes  
2     applying a sound localization function to the time-based media data.

1           20. The system of claim 1 wherein the multimedia function includes selecting  
2     a range of video data in response to received input from the user.

1           21. The system of claim 1 wherein the multimedia function includes  
2     applying a video event detection function to the time-based media data.

1           22. The system of claim 1 wherein the multimedia function includes  
2     applying a color histogram analysis function to the time-based media data.

1           23. The system of claim 1 wherein the multimedia function includes  
2     applying a face detection function to the time-based media data.

1           24. The system of claim 23 wherein the multimedia function includes  
2     applying a clustering function to the time-based media data to merge multiple  
3     instances of a face into a representative face image.

1           25. The system of claim 1 wherein the multimedia function includes  
2     applying a face recognition function to the time-based media data.

1           26. The system of claim 1 wherein the multimedia function includes  
2     applying an optical character recognition function to the time-based media data.

1           27. The system of claim 26 wherein the multimedia function further includes  
2     applying a clustering function to the time-based media data to merge similar results  
3     of the optical character recognition.

1           28. The system of claim 1 wherein the multimedia function includes  
2     applying a motion analysis function to the time-based media data.

1           29. The system of claim 1 or claim 28 wherein the multimedia function  
2     includes applying a distance estimation function to the time-based media data.

1           30. The system of claim 1 wherein the multimedia function includes  
2     applying foreground/background segmentation function to the time-based media  
3     data.

1           31. The system of claim 1 wherein the multimedia function includes  
2     applying a scene segmentation function to the time-based media data.

1           32. The system of claim 31 wherein the multimedia function further includes  
2     applying a face recognition recognition function to the time-based media data.

1           33. The system of claim 31 wherein the multimedia function further includes  
2     applying a face detection function to the time-based media data.

1           34. The system of claim 31 wherein the multimedia function includes  
2     applying an optical character recognition function to the time-based media data.

1           35. The system of claim 34 wherein the multimedia function further includes  
2     applying a face recognition function to the time-based media data.

1           36. The system of claim 34 wherein the multimedia function includes  
2     applying a face detection function to the time-based media data.

1           37. The system of claim 1 wherein the multimedia function includes  
2     applying an automobile recognition function to the time-based media data.

1           38. The system of claim 37 wherein the multimedia function further includes  
2     applying a motion analysis function to the time-based media data.

1           39. The system of claim 1 wherein the multimedia function includes  
2     applying a license plate recognition function to the time-based media data.

1           40. The system of claim 1 wherein the multimedia function includes  
2     applying a visual inspection function to the time-based media data.

1           41. The system of claim 1 wherein the user interface is configured to allow a  
2     user to control a compact disc (CD) device.

1           42. The system of claim 1 wherein the user interface is configured to allow a  
2     user to control a digital video disc (DVD) device.

1           43. The system of claim 1 wherein the user interface is configured to allow a  
2     user to control an audio tape device.

1           44. The system of claim 1 wherein the user interface is configured to allow a  
2     user to control a video tape device.

1           45. The system of claim 1 wherein the user interface is configured to allow a  
2   user to control a multimedia server.

1           46. The system of claim 1 wherein the user interface is configured to allow a  
2   user to control encryption hardware.

1           47. The system of claim 1 wherein the user interface is configured to allow a  
2   user to control audio sound localization hardware.

1           48. The system of claim 1 wherein the user interface is configured to allow a  
2   user to control motion detection hardware.

1           49. The system of claim 1 wherein the user interface is configured to allow a  
2   user to control a MIDI player.

1           50. The system of claim 1 wherein the user interface is configured to allow a  
2   user to control a cellular telephone.

1           51. The system of claim 1 wherein the user interface is configured to allow a  
2   user to control a two-way radio.

1           52. The system of claim 1 wherein the user interface is configured to allow a  
2   user to control a world wide web display.

1           53. The system of claim 1 wherein the user interface is configured to allow a  
2   user to control a climate sensor.

1           54. The system of claim 1 wherein the user interface is configured to allow a  
2 user to control a radio receiver.

1           55. The system of claim 1 wherein the processor is further configured to  
2 display results of the multimedia function on the display of the user interface.

1           56. The printer of claim 1 wherein the second output device is a DVD drive.

1           57. The printer of claim 1 wherein the second output device is a CD drive.

1           58. The printer of claim 1 wherein the second output device is an audio tape  
2 drive.

1           59. The printer of claim 1 wherein the second output device is a video  
2 cassette device.

1           60. The printer of claim 1 wherein the second output device is a removable  
2 media device.

1           61. The printer of claim 1 wherein the second output device is an embedded  
2 audio recorder.

1           62. The printer of claim 1 wherein the second output device is an embedded  
2 video recorder.

1           63. The printer of claim 1 wherein the second output device is an non-  
2 volatile storage device.

1           64. The printer of claim 1 wherein the second output device is an embedded  
2 multimedia server.

1           65. The printer of claim 1 wherein the second output device is audio  
2 encryption hardware.

1           66. The printer of claim 1 wherein the second output device is video  
2 encryption hardware.

1           67. The printer of claim 1 wherein the second output device is audio sound  
2 localization hardware.

1           68. The printer of claim 1 wherein the second output device is a cellular  
2 telephone.

1           69. The printer of claim 1 wherein the second output device is a two-way  
2 radio.

1           70. The printer of claim 1 wherein the second output device is a world-wide  
2 web display.

1           71. The printer of claim 1 wherein the second output device is a radio  
2 receiver for receiving AM signals.

1           72. The printer of claim 1 wherein the second output device is a radio  
2 receiver for receiving FM signals.



1           73. The printer of claim 1 wherein the second output device is a radio  
2 receiver for receiving short wave signals.

1           74. The printer of claim 1 wherein the second output device is a satellite  
2 radio receiver.

1           75. The printer of claim 1 wherein the second output device is a weather alert  
2 receiver.

1           76. The printer of claim 1 wherein the second output device is an emergency  
2 alert monitor for receiving emergency broadcast system alerts.

1           77. The printer of claim 1 wherein the second output device is hardware for  
2 performing VGA screen captures.

1           78. The printer of claim 1 wherein the second output device is hardware for  
2 performing audio capture.

1           79. The printer of claim 1 wherein the second output device is hardware for  
2 capturing data from an electronic pen.

1           80. The printer of claim 1 wherein the second output device is a disposable  
2 media writer.

1           81. A method for printing time-based media, the method comprising:  
2 receiving time-based media data from a media source;  
3 receiving user input, the user input specifying a multimedia function to  
4 perform on the time-based media, an amount of processing to be

5 performed by a printer, and an amount of processing to be performed by  
6 a processing device;  
7 performing, by the printer, the amount of processing specified to be  
8 performed by the printer to carry out the specified multimedia function;  
9 performing, by the processing device, the amount of processing specified to  
10 be performed by the processing device to carry out the specified  
11 multimedia function;  
12 producing output on the printer associated with the processed media data;  
13 and  
14 producing an electronic output associated with the processed media data.

1 82. The method of claim 81 wherein the user input is received at the printer.

1 83. The method of claim 81 wherein the user input is received at the  
2 processing device.

1 84. The method of claim 81 wherein the processing device is a personal  
2 computer.

1 85. The method of claim 81 wherein the multimedia function includes  
2 selecting a range of audio data in response to received input from the user.

1 86. The method of claim 81 wherein the multimedia function includes  
2 applying audio event detection to the time-based media data.

1 87. The method of claim 86 wherein the multimedia function further  
2 includes determining a confidence level associated with the audio event detection.

1           88. The method of claim 81 wherein the multimedia function includes  
2     applying a speaker segmentation function to the time-based media data.

1           89. The method of claim 81 or 88 wherein the multimedia function includes  
2     applying a speaker recognition function to the time-based media data.

1           90. The method of claim 81 wherein the multimedia function includes  
2     applying a sound source localization function to the time-based media data.

1           91. The method of claim 90 wherein the multimedia function further  
2     includes applying audio event detection to the time-based media data.

1           92. The method of claim 81 wherein the multimedia function includes  
2     applying a speech recognition function to the time-based media data.

1           93. The method of claim 92 wherein the multimedia function includes  
2     applying a profile analysis function to the time-based media data.

1           94. The method of claim 92 wherein the multimedia function includes  
2     applying an audio event detection function to the time-based media data.

1           95. The method of claim 94 wherein the multimedia function further  
2     includes applying a speaker recognition function to the time-based media data.

1           96. The method of claim 94 wherein the multimedia function further  
2     includes applying a speaker segmentation function to the time-based media data.

1           97. The method of claim 94 wherein the multimedia function further  
2 includes applying a sound localization function to the time-based media data.

1           98. The method of claim 81 wherein the multimedia function includes  
2 selecting a range of video data in response to received input from the user.

1           99. The method of claim 81 wherein the multimedia function includes  
2 applying a video event detection function to the time-based media data.

1           100. The method of claim 81 wherein the multimedia function includes  
2 applying a color histogram analysis function to the time-based media data.

1           101. The method of claim 81 wherein the multimedia function includes  
2 applying a face detection function to the time-based media data.

1           102. The method of claim 101 wherein the multimedia function includes  
2 applying a clustering function to the time-based media data to merge multiple  
3 instances of a face into a representative face image.

1           103. The method of claim 81 wherein the multimedia function includes  
2 applying a face recognition function to the time-based media data.

1           104. The method of claim 81 wherein the multimedia function includes  
2 applying an optical character recognition function to the time-based media data.

1           105. The method of claim 104 wherein the multimedia function further  
2 includes applying a clustering function to the time-based media data to merge  
3 similar results of the optical character recognition.

1           106. The method of claim 81 wherein the multimedia function includes  
2     applying a motion analysis function to the time-based media data.

1           107. The method of claim 81 or claim 106 wherein the multimedia function  
2     includes applying a distance estimation function to the time-based media data.

1           108. The method of claim 81 wherein the multimedia function includes  
2     applying foreground/background segmentation function to the time-based media  
3     data.

1           109. The method of claim 81 wherein the multimedia function includes  
2     applying a scene segmentation function to the time-based media data.

1           110. The method of claim 109 wherein the multimedia function further  
2     includes applying a face recognition recognition function to the time-based media  
3     data.

1           111. The method of claim 109 wherein the multimedia function further  
2     includes applying a face detection function to the time-based media data.

1           112. The method of claim 109 wherein the multimedia function includes  
2     applying an optical character recognition function to the time-based media data.

1           113. The method of claim 112 wherein the multimedia function further  
2     includes applying a face recognition function to the time-based media data.

1           114. The method of claim 112 wherein the multimedia function includes  
2     applying a face detection function to the time-based media data.

1           115. The method of claim 81 wherein the multimedia function includes  
2   applying an automobile recognition function to the time-based media data.

1           116. The method of claim 115 wherein the multimedia function further  
2   includes applying a motion analysis function to the time-based media data.

1           117. The method of claim 81 wherein the multimedia function includes  
2   applying a license plate recognition function to the time-based media data.

1           118. The method of claim 81 wherein the multimedia function includes  
2   applying a visual inspection function to the time-based media data.